

**REMARKS**

This paper is intended as a full and complete response to the Office Action dated May 31, 2007, having a shortened statutory period for response set to expire on August 31, 2007.

Claims 18 and 31 are currently amended in the Application.

Claims 38-44 are cancelled.

Claims 18-26 are provisionally withdrawn in the Application pending the allowance of Claim 1.

**Election Restriction**

The Office Action has suggested that the current application is directed to the following patentably distinct species:

- I. Claims 1-17 and 27-37, drawn to a process and apparatus for upgrading crude oil from a subterranean reservoir of heavy oil or bitumen;
- II. Claims 18-26, drawn to a process for upgrading crude oil from a subterranean reservoir of heavy oil or bitumen, the process including a step of hydrotreating a hydrocarbon effluent to produce a low sulfur hydrocarbon effluent; and
- III. Claims 38-44, drawn to an apparatus for upgrading crude oil from a subterranean reservoir of heavy oil or bitumen

Applicant confirms election of Group I (Claims 1-17 and 27-37) for prosecution on the merits. Applicant respectfully submits that base claim 18 as currently amended is linked to base claim 1 ("the linking claim"). Alternatively, Group I (Claims 1-17 and 27-37) and Group II (Claims 18-26) are related as combination and subcombination. Therefore, upon allowance of Claim 1, Claim 18 should be re-joined and also found allowable since Claim 18 includes all the limitations of Claim 1.

### **Claim Objections**

The Office Action objected to Claim 31 as being of improper dependent form. Applicant has amended Claim 31 to present the claim in proper dependent form, obviating the objection. Such proposed amendment is not intended to narrow the claim or otherwise limit the scope of equivalents thereof. Withdrawal of the objection is respectfully requested.

### **Claim Rejections – 35 USC 103**

The Office Action rejected Claims 1-8, 10-16, and 27-36 under 35 USC 103(a) as being unpatentable over *Audeh* US Patent Number 5,192,421, in view of *Inomata* US Patent Number 5,453,559. With respect to base Claims 1, 5 and 27 the Examiner states, “the person having ordinary skill in the art of heavy oil upgrading would have been motivated to incorporate the use of Inomata’s hydrorefining process as the ‘upgrading means’ of *Audeh*’s process in order to deposit a portion of the metals from the DAO fraction onto an FCC catalyst, and recover a hydrocarbon effluent having a reduced metal content from an FCC unit.”

Applicant respectfully traverses the rejection on grounds that a combination of the references does not teach, show, or suggest the claimed subject matter. Neither reference, alone nor in combination, teaches, shows, or suggests fluid catalytic cracking (FCC), much less supplying a feed comprising a DAO fraction to a reaction zone of a fluid catalytic cracking (FCC) unit with FCC catalyst to deposit a portion of the metals from the DAO fraction onto the FCC catalyst, as required in every claim. *Audeh* discloses a process for producing a DAO which is heated and distilled. Only the bottom most fraction of the distillates is then catalytically upgraded "e.g., catalytic cracking or hydrotreating or hydrocracking, or thermal, e.g., visbreaking" (See *Audeh* Col. 5, ll. 59-61). *Audeh* makes no mention of fluidized catalytic cracking ("FCC") and makes no mention of depositing metals from a DAO fraction onto a FCC catalyst. Similarly, *Inomata* makes no mention of fluidized catalytic cracking ("FCC"). Instead, *Inomata* (English translation) at page 7, lines 21-29, discloses a hydrorefining process that

employs hydrocracking and hydrodemetallization, which are not FCC. Hydrorefining is not FCC. FCC does not require or utilize hydrogen to crack molecules. FCC produces hydrogen. As such, those refining techniques are widely accepted and known in the art to be entirely different.

Therefore, a combination of the references does not teach, show or suggest solvent deasphalting at least a portion of a heavy oil or bitumen to form an ashphaltene fraction and a deasphalting oil (DAO) fraction essentially free of asphaltenes having a reduced metals content and supplying a feed comprising the DAO fraction to a reaction zone of a fluid catalytic cracking (FCC) unit with FCC catalyst to deposit a portion of the metals from the DAO fraction onto the FCC catalyst, as recited in the claims. Therefore, withdrawal of the rejection and allowance of the claims is respectfully requested.

Furthermore, Applicant respectfully traverses the rejection on grounds that the Examiner has not established a *prima facie* case of obviousness. To establish *prima facie* obviousness of a claimed subject matter, all claim limitations must be taught or suggested by the prior art (See MPEP § 2143.03 citing In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)). Further, the teaching or suggestion to make the claimed subject matter and the reasonable expectation of success must both be found in the prior art, not in the applicants' disclosure (See MPEP § 2143, citing In re Vaeck, 947 F.2d 488 (Fed. Cir. 1991)). Still further, the Examiner must *particularly* identify any suggestion, teaching or motivation from *within* the references to combine the references (emphasis added) (See In Re Dembicza, 50 USPQ2d 1614 (Fed. Cir. 1999)). The mere recitation of a combination of references does not amount to particularly identifying a suggestion, teaching, or a motivation to combine the references.

For reasons stated above, a mere combination of *Audeh* and *Inomata* does not arrive at the claimed subject matter. Notwithstanding, there is no motivation to combine the teachings of the *Audeh* and *Inomata* nor any motivation to modify the teachings of the references to arrive at the claimed subject matter. Here, the Examiner's argument that "the person having ordinary skill in the art of heavy oil upgrading would have had a reasonable expectation of success in incorporating the use of Inomata's hydrorefining process as the upgrading means of *Audeh*'s process because (1) both *Audeh* and Inomata are directed to the solvent deasphalting of heavy

oil, and (2) Audeh specifically contemplates the use of hydrocracking and hydrotreating as the 'upgrading means' in a process for upgrading crude oils" is irrelevant. As mentioned above, FCC is not a hydrorefining process. FCC is a cracking process that does not require or utilize hydrogen. FCC produces hydrogen. As such, those refining techniques are widely accepted and known in the art to be entirely different. Therefore, there is no motivation to combine the teachings of the *Audeh* and *Inomata* nor any motivation to modify the teachings of the references to arrive at the claimed subject matter. Withdrawal of the rejection and allowance of the claims is respectfully requested.

Since Applicant believes that the claimed subject matter in Claims 1, 5, and 27 are patentable over the cited art per the above remarks, Applicant believes that dependent Claims 2-4, 6-8, 10-16, and 28-36 are therefore also patentable over the cited art. Withdrawal of the rejection and allowance of the claims is respectfully requested.

The Office Action rejected Claims 9, 17, and 37 under 35 USC 103(a) as being unpatentable over *Audeh* US Patent Number 5,192,421, in view of *Inomata* US Patent Number 5,453,559, and P.S. Wallace, *Heavy Oil Upgrading by the Separation and Gasification of Asphaltenes* (hereinafter "*Wallace*"). The Examiner states identical arguments as above regarding *Audeh* and *Inomata*. In addition, the Examiner states that *Wallace* discloses an integrated deasphalting-gasification process whereby the asphalt fraction obtained in a deasphalting process is used as feed to an asphalt gasification process. The Examiner subsequently concludes that the disclosed *Wallace* asphalt gasification process can be used as a combined deasphalting-gasification process and is obviously similar to the instantly claimed application.

Applicant respectfully traverses the rejection for reasons stated above. A combination of *Audeh* and *Inomata* does not teach, show or suggest supplying a feed comprising the DAO fraction to a reaction zone of a fluid catalytic cracking (FCC) unit with FCC catalyst, as required in every claim. *Wallace* adds nothing to the deficiencies of *Audeh* and *Inomata*. As such, Claims

9, 17, and 37 are in condition for allowance. Withdrawal of the rejection and allowance of the claims is respectfully requested.

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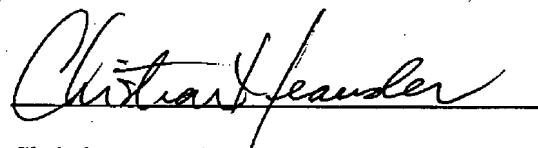
Having addressed all issues set out in the Office Action, Applicant respectfully submits that the pending claims are now in condition for allowance. Applicant invites the Examiner to telephone the undersigned attorney if there are any issues outstanding which have not been addressed to the Examiner's satisfaction.

**If any fees are due with the noted amendments, the Director is hereby authorized to charge any fees associated with this filing to Deposit Account Number 11-0400 in the name of Kellogg Brown & Root LLC.**

Applicant thanks the Examiner for his time on the matter.

Respectfully submitted,

Date: 8/23/07

  
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